Initial Review Exposure Report (IRExR)

This assessment is based on the Focus Ready Draft dated 12/3/2018.

Chemical ID:P-19-0002 **Reviewer: Orentas/ENC**

Exposure Scenario	Water						Land fill(non-sludge)	Stack		Fugitive	
Release Activity(ies) exposure Calculations	Drinking Water		Fish Ingestion								
	ADR mg/kg/day	LADD mg/kg/day	ADR mg/kg/day	LADD mg/kg/day	7Q10cc 1000 ug/l	PDM Exceeded # Days	LADD mg/kg/day	ADR mg/kg/day	LADD mg/kg/day	ADR mg/kg/day	LADD mg/kg/day
MFG+USE:Max ADR	9.28e-6	--	1.08e-6	--	3.50e-1	--	--	-- (--)	-- (--)	1.40e-1 (7.90e+2)	-- (--)
MFG+USE:PDM1	--	--	--	--	1.40e-1	0	--	-- (--)	-- (--)	-- (--)	-- (--)
MFG+USE:PDM2	--	--	--	--	3.50e-1	0	--	-- (--)	-- (--)	-- (--)	-- (--)
MFG+USE:Max LADD	--	1.04e-7	--	2.24e-9	--	--	--	-- (--)	-- (--)	-- (--)	8.98e-4 (1.16e+1)

1. Exposure scenario titles consist of release activity followed by exposure calculation abbreviation.
2. Release activities are from engineering report's Manufacturing (Mfg), Processing (Proc) and Use release activity labels.Multiple release activities are combined in one exposure scenario if their releases occur at same location.
3. Exposure calculations are Acute Dose Rate (ADR), Lifetime Average Daily Dose (LADD), and Probabilistic Dilution Model (PDM). There may be one, two, or all three exposure calculations per exposure scenario. CC is the aquatic concentration of concern.
4. This column displays concentration values for the 7Q10 streamflow, which is defined as the average daily streamflow of the seven consecutive days of lowest flow within a ten year period.

[redacted]

SCALING FACTORS FOR DRINKING WATER DOSE

Age Group	Scaling Factor for ADR	Scaling Factor for ADD
Adults	1.0	1.0
Birth to 1	**4.17**	**11.49**
1-2	1.63	3.91
3-5	1.24	3.10
6-10	1.12	2.51
11-15	0.83	1.77
16-21	0.79	1.55
Pregnant	1.02	2.07
Lactating	1.31	3.84

Scaling factors for ADR are based on the ratio of 95th percentile drinking water intake/body weight for each age group compared to the 95th percentile drinking water intake/body weight ratio for adults from Table 3-1 of the 2011 edition of the Exposure Factors Handbook.

Scaling factors for age specific ADD are based on the ratio of the mean drinking water intake/body weight for each age group compared to the mean drinking water intake/body weight ratio for adults from Table 3-1 of the 2011 edition of the Exposure Factors Handbook.

Note, default LADD values are based on assumption that 33 years of lifetime exposure occurs in adulthood. If that exposure starts at birth, the LADD increases by 10% (1.1). However, central tendency duration (13 years) and consideration of age specific adjustment factors (ADAF) can be considered on an as needed basis (LADD Scaling factors range from 0.6 to 4.1).

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: P-19-0002 Assessor: Orentas/ENC

ENVIRONMENTAL RELEASES

Scenario#:1 Number of Release Sites: 1.

Release Activity: MFG+USE:Max ADR

Release Description:	WATER	LANDFILL Non-sludge/Sludge	STACK	FUGITIVE
Total Releases:	[redacted]	[redacted]	[redacted]	[redacted]
	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)
		Non-sludge/Sludge		
Release Days/yr:	[redacted]	0.00/0.00	N/A	[redacted]
Per Site Release:	[redacted]	N/A/0.00	N/A	[redacted]
	(kg/site/day)	(kg/site/day)	(kg/site/day)	(kg/site/day)

Remarks:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: P-19-0002

SITE-SPECIFIC HUMAN AND AQUATIC EXPOSURES TO SURFACE WATER RELEASES

SCENARIO NUMBER:1 RELEASE ACTIVITY: MFG+USE:Max ADR

[redacted]

EXPOSED POPULATION: Adult

WWT REMOVAL (%)	RELEASE DAYS	PRETREATMENT RELEASE (kg/site/day)	POSTTREATMENT RELEASE (kg/site/day)	DWT (%)	BCF (L/kg)
90.	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

AQUATIC EXPOSURE ESTIMATES - SURFACE WATER					
FLOW DESCRIPTOR	Harmonic Mean	30Q5	7Q10	1Q10	PLANT
FLOW (MLD)	5616.60	2366.73	1657.69	1335.10	NA
CONCENTRATION (µg/L)	0.10	0.25	0.35	0.43	NA

DRINKING WATER INGESTION AND FISH INGESTION EXPOSURE ESTIMATES				
Exposure Units	Drinking Water Results	Drinking Water Units	Fish Ingestion Results	Fish Ingestion Units
Cancer				
$LADD_{pot}$	8.87E-08	mg/kg/day	1.92E-09	mg/kg/day
$LADC_{pot}$	6.82E-06	mg/L	2.05E-05	mg/kg
Acute				
ADR_{pot}	9.28E-06	mg/kg/day	1.08E-06	mg/kg/day

Surface Water Comments:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: P-19-0002

INHALATION EXPOSURE ESTIMATES (POST-TREATMENT)

SCENARIO #: 1 RELEASE ACTIVITY:MFG+USE:Max ADR

RELEASE DESCRIPTION:

METHOD OF CALCULATION: Screen3

EXPOSED POPULATION: Adult

Number of Sites:

[redacted]

Fugitive Release Days per Year:

% Removal via Fugitive Release:

Total Fugitive Release:

Max Annual Average Air Concentration (Fugitive):

Max 24 Hour Average Air Concentration(Fugitive):

Per Site Stack Release:

Stack Release Days per Year:

% Removal via Stack Release:

Total Stack Release:

Max Annual Average Air Concentration (Stack):

Max 24 Hour Average Air Concentration (Stack):

Exposure Units	Results (Stack)	Results (Fugitive)	ASSUMPTIONS			
			ED (years)	AT (years)	BW (kg)	Inh. Rate (m^3/hr)
Cancer						
$LADD_{pot}$ (mg/kg/day)	N/A	7.66E-04	33.00	78.00	80.00	0.61
$LADC_{pot}$ (mg/m^3)	N/A	4.19E-03	33.00	78.00	NA	NA
Acute						
ADR_{pot} (mg/kg/day)	N/A	0.14	NA	1 day	80.00	0.61

Inhalation Comments:

Stack Parameter Data		Fugitive Parameter Data		
Stack Height	10.00	Release Height:	3.00	m
Inside Stack Diameter:	0.10	Length of Release Opening:	10.00	m
Stack Gas Exit Velocity:	0.10	Width of Release Opening:	10.00	m
Stack Gas Temperature:	293.00			

Meteorological and Terrain Information:

Surrounding Land Use:	Rural	
Terrain Height:	0.00	m
Distance to Residence of Interest:	100.00	m
Meteorological Class:	Full	
Stability Class:	NA	
Wind Speed:	NA	

Downwash Information:

Facility Length:	NA	m
Facility Width:	NA	m
Facility Height:	NA	m

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: P-19-0002 Assessor: Orentas/ENC

ENVIRONMENTAL RELEASES

Scenario#:2 Number of Release Sites: 1.

Release Activity: MFG+USE:PDM1

Release Description:	WATER	LANDFILL Non-sludge/Sludge	STACK	FUGITIVE
Total Releases:	[redacted]			
	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)
		Non-sludge/Sludge		
Release Days/yr:		[redacted]		
Per Site Release:		[redacted]		
	(kg/site/day)	(kg/site/day)	(kg/site/day)	(kg/site/day)

Remarks:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: P-19-0002

SITE-SPECIFIC HUMAN AND AQUATIC EXPOSURES TO SURFACE WATER RELEASES

SCENARIO NUMBER:2 RELEASE ACTIVITY: MFG+USE:PDM1

[redacted]

WWT REMOVAL (%)	RELEASE DAYS	PRETREATMENT RELEASE (kg/site/day)	POSTTREATMENT RELEASE (kg/site/day)	DWT (%)	BCF (L/kg)
[redacted]					

AQUATIC EXPOSURE ESTIMATES - SURFACE WATER					
FLOW DESCRIPTOR	Harmonic Mean	30Q5	7Q10	1Q10	PLANT
FLOW (MLD)	5616.60	2366.73	1657.69	1335.10	NA
CONCENTRATION (µg/L)	4.27E-02	0.10	0.14	0.18	NA

DRINKING WATER INGESTION AND FISH INGESTION EXPOSURE ESTIMATES				
Exposure Units	Drinking Water Results	Drinking Water Units	Fish Ingestion Results	Fish Ingestion Units
Cancer				
$LADD_{pot}$	5.15E-08	mg/kg/day	1.11E-09	mg/kg/day
$LADC_{pot}$	3.96E-06	mg/L	1.19E-05	mg/kg
Acute				
ADR_{pot}	3.84E-06	mg/kg/day	4.47E-07	mg/kg/day

Surface Water Comments:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: P-19-0002

SITE-SPECIFIC HUMAN AND AQUATIC EXPOSURES TO SURFACE WATER RELEASES

SCENARIO NUMBER: 2 RELEASE ACTIVITY: MFG+USE:PDM1

[redacted]

50 %ile FLOW (MLD): 9319.19 10 %ile FLOW (MLD): 1873.62 EFFLUENT FLOW (MLD):3.78

RESULTS

COC (µg/L)	Percent of Year COC Exceeded	Number of Days COC Exceeded	Release days/year	Pre-treatment Loading (kg/site/day)	Waste Water Treatment (%)
[redacted]					

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: P-19-0002 Assessor: Orentas/ENC

ENVIRONMENTAL RELEASES

Scenario#:3 Number of Release Sites: 1.

Release Activity: MFG+USE:PDM2

Release Description:	WATER	LANDFILL Non-sludge/Sludge	STACK	FUGITIVE
Total Releases:	330.60	N/A	N/A	0.00
	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)
		Non-sludge/Sludge		
Release Days/yr:	57.00	0.00/0.00	N/A	0.00
Per Site Release:	5.80	N/A/0.00	N/A	0.00
	(kg/site/day)	(kg/site/day)	(kg/site/day)	(kg/site/day)

Remarks:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: P-19-0002

SITE-SPECIFIC HUMAN AND AQUATIC EXPOSURES TO SURFACE WATER RELEASES

SCENARIO NUMBER:3 RELEASE ACTIVITY: MFG+USE:PDM2

[redacted]

WWT REMOVAL (%)	RELEASE DAYS	PRETREATMENT RELEASE (kg/site/day)	POSTTREATMENT RELEASE (kg/site/day)	DWT (%)	BCF (L/kg)
[redacted]					

AQUATIC EXPOSURE ESTIMATES - SURFACE WATER					
FLOW DESCRIPTOR	Harmonic Mean	30Q5	7Q10	1Q10	PLANT
FLOW (MLD)	5616.60	2366.73	1657.69	1335.10	NA
CONCENTRATION (µg/L)	0.10	0.25	0.35	0.43	NA

DRINKING WATER INGESTION AND FISH INGESTION EXPOSURE ESTIMATES				
Exposure Units	Drinking Water Results	Drinking Water Units	Fish Ingestion Results	Fish Ingestion Units
Cancer				
$LADD_{pot}$	8.87E-08	mg/kg/day	1.92E-09	mg/kg/day
$LADC_{pot}$	6.82E-06	mg/L	2.05E-05	mg/kg
Acute				
ADR_{pot}	9.28E-06	mg/kg/day	1.08E-06	mg/kg/day

Surface Water Comments:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: P-19-0002

SITE-SPECIFIC HUMAN AND AQUATIC EXPOSURES TO SURFACE WATER RELEASES

SCENARIO NUMBER: 3 RELEASE ACTIVITY: MFG+USE:PDM2

[redacted]

50 %ile FLOW (MLD): 9319.19 10 %ile FLOW (MLD): 1873.62 EFFLUENT FLOW (MLD):3.78

RESULTS

COC (µg/L)	Percent of Year COC Exceeded	Number of Days COC Exceeded	Release days/year	Pre-treatment Loading (kg/site/day)	Waste Water Treatment (%)
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: P-19-0002 Assessor: Orentas/ENC

ENVIRONMENTAL RELEASES

Scenario#:4 Number of Release Sites: 1.

Release Activity: MFG+USE:Max LADD

Release Description:	WATER	LANDFILL Non-sludge/Sludge	STACK	FUGITIVE
Total Releases:	385.80 (kg/yr)	N/A (kg/yr)	N/A (kg/yr)	385.80 (kg/yr)
		Non-sludge/Sludge		
Release Days/yr:	1.00	0.00/0.00	N/A	1.00
Per Site Release:	385.80 (kg/site/day)	N/A/0.00 (kg/site/day)	N/A (kg/site/day)	385.80 (kg/site/day)

Remarks:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: P-19-0002

SITE-SPECIFIC HUMAN AND AQUATIC EXPOSURES TO SURFACE WATER RELEASES

SCENARIO NUMBER:4 RELEASE ACTIVITY: MFG+USE:Max LADD

[redacted]

WWT REMOVAL (%)	RELEASE DAYS	PRETREATMENT RELEASE (kg/site/day)	POSTTREATMENT RELEASE (kg/site/day)	DWT (%)	BCF (L/kg)
[redacted]					

AQUATIC EXPOSURE ESTIMATES - SURFACE WATER					
FLOW DESCRIPTOR	Harmonic Mean	30Q5	7Q10	1Q10	PLANT
FLOW (MLD)	5616.60	2366.73	1657.69	1335.10	NA
CONCENTRATION (µg/L)	N/A	N/A	N/A	N/A	NA

DRINKING WATER INGESTION AND FISH INGESTION EXPOSURE ESTIMATES				
Exposure Units	Drinking Water Results	Drinking Water Units	Fish Ingestion Results	Fish Ingestion Units
Cancer				
$LADD_{pot}$	1.04E-07	mg/kg/day	2.24E-09	mg/kg/day
$LADC_{pot}$	7.96E-06	mg/L	2.39E-05	mg/kg
Acute				
ADR_{pot}	N/A	mg/kg/day	N/A	mg/kg/day

Surface Water Comments:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: P-19-0002

INHALATION EXPOSURE ESTIMATES (POST-TREATMENT)

SCENARIO #: 4 RELEASE ACTIVITY:MFG+USE:Max LADD

RELEASE DESCRIPTION:

METHOD OF CALCULATION: Screen3

EXPOSED POPULATION: Adult

Number of Sites: [redacted]

Per Site Fugitive Release: [redacted]

Fugitive Release Days per Year: [redacted]

% Removal via Fugitive Release: [redacted]

Total Fugitive Release: [redacted]

Max Annual Average Air Concentration (Fugitive): [redacted]

Max 24 Hour Average Air Concentration(Fugitive): [redacted]

Per Site Stack Release: [redacted]

Stack Release Days per Year: [redacted]

% Removal via Stack Release: [redacted]

Total Stack Release: [redacted]

Max Annual Average Air Concentration (Stack): [redacted]

Max 24 Hour Average Air Concentration (Stack): [redacted]

Exposure Units	Results (Stack)	Results (Fugitive)	ASSUMPTIONS			
			ED (years)	AT (years)	BW (kg)	Inh. Rate (m^3/hr)
Cancer						
$LADD_{pot}$ (mg/kg/day)	N/A	8.98E-04	33.00	78.00	80.00	0.61
$LADC_{pot}$ (mg/m^3)	N/A	4.91E-03	33.00	78.00	NA	NA
Acute						
ADR_{pot} (mg/kg/day)	N/A	N/A	NA	1 day	80.00	0.61

Inhalation Comments:

Stack Parameter Data		Fugitive Parameter Data		
Stack Height	10.00	Release Height:	3.00	m
Inside Stack Diameter:	0.10	Length of Release Opening:	10.00	m
Stack Gas Exit Velocity:	0.10	Width of Release Opening:	10.00	m
Stack Gas Temperature:	293.00			

Meteorological and Terrain Information:

Surrounding Land Use:	Rural	
Terrain Height:	0.00	m
Distance to Residence of Interest:	100.00	m
Meteorological Class:	Full	
Stability Class:	NA	
Wind Speed:	NA	

Downwash Information:

Facility Length:	NA	m
Facility Width:	NA	m
Facility Height:	NA	m